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RD-29,557-4

LISTING of CLAIMS

1-12. (Canceled)

13. (Currently amended) An article cleaning apparatus comprising:
an air management mechanism;
a cleaning basket assembly;
a fluid regeneration device;
a working fluid device coupled to said fluid regeneration device, said
cleaning basket assembly, and said air management mechanism;
a clean fluid device coupled to said cleaning basket assembly and said
fluid regeneration device;
a controller coupled to said air management mechanism, said cleaning
basket assembly, said working fluid device, said regeneration device, and said
clean fluid device; wherein said controller is configured to control a cleaning
process, including at least a solvent cleaning process, wherein said solvent
cleaning process utilizes a solvent based cleaning fluid comprising cyclic
siloxane solvent; and
a spectroscopic solvent vapor sensor coupled to the controller for
identifying siloxane solvent vapor, wherein the sensor comprises:
an infrared source to generate infrared radiation; and
an infrared sensor, the infrared sensor adapted to be selectively
responsive to siloxane absorbance of infrared radiation having
wavelengths in a near or mid-infrared range.

14. (Canceled)

15. (Currently amended) An article cleaning apparatus comprising:
an air management mechanism;
a cleaning basket assembly;
a fluid regeneration device;

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a working fluid device coupled to said fluid regeneration device, said cleaning basket assembly, and said air management mechanism, a clean fluid device coupled to said cleaning basket assembly and said fluid regeneration device;

a controller coupled to said air management mechanism, said cleaning basket assembly, said working fluid device, said regeneration device, and said clean fluid device; wherein said controller is configured to control a cleaning process, including at least a solvent cleaning process, wherein said solvent cleaning process utilizes a solvent based cleaning fluid comprising cyclic siloxane solvent; and

a piezo-based solvent vapor sensor coupled to the controller for identifying siloxane solvent vapor, wherein the sensor comprises:

a quartz crystal microbalance element including a transducer film that selectively absorbs the siloxane solvent vapor.

16. (Currently amended) The article cleaning apparatus solvent-vapor sensor of claim 15 wherein said transducer film comprises a non-polar polymer.

17. (Currently amended) The article cleaning apparatus solvent-vapor sensor of claim 16 wherein said transducer film comprises a hydrocarbon chain.

18. (Currently amended) An article cleaning apparatus comprising:
an air management mechanism;
a cleaning basket assembly;
a fluid regeneration device;
a working fluid device coupled to said fluid regeneration device, said cleaning basket assembly, and said air management mechanism, a clean fluid device coupled to said cleaning basket assembly and said fluid regeneration device;

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a controller coupled to said air management mechanism, said cleaning basket assembly, said working fluid device, said regeneration device, and said clean fluid device; wherein said controller is configured to control a cleaning process, including at least a solvent cleaning process, wherein said solvent cleaning process utilizes a solvent based cleaning fluid comprising cyclic siloxane solvent; and

a strain based solvent vapor sensor for identifying siloxane solvent vapor, wherein the sensor comprises comprising:

a piezo-resistive circuit; and

a sensing element coupled to the piezo-resistive circuit and, the sensing element including a transducer film.

19. (Currently amended) The article cleaning apparatus strain-based solvent vapor sensor of claim 18 wherein said transducer film comprises a non-polar polymer.

20. (Currently amended) The article cleaning apparatus strain-based solvent vapor sensor of claim 18 wherein said transducer film comprises a hydrocarbon chain.

21. (Cancelled)

22. (Currently amended) The article cleaning apparatus spectroscopic solvent vapor of claim 13, wherein the infrared sensor is responsive to siloxane absorbance of infrared radiation having wavelengths between about 2300nm and about 2500nm.

23. (Currently amended) The article cleaning apparatus spectroscopic solvent vapor of claim 13, wherein the infrared sensor is responsive to siloxane absorbance of infrared radiation having wavelengths of about 9200nm.